

Newton's 2nd Law

2004	<p>C5. An unladen helicopter of mass M kilograms can hover at a constant height above the ground when the engine exerts a lift force of P newtons.</p> <p>The helicopter is loaded with cargo which increases its mass by 1%. When airborne, the engine now exerts a lift force 5% greater than P to accelerate the helicopter vertically upwards. Calculate this vertical acceleration.</p> <p style="text-align: right;">5</p>
2009	<p>A7. A block is released from rest at the top of a smooth plane which is inclined at angle θ to the horizontal. Show that the time, in seconds, taken for the block to reach the bottom of the plane is given by</p> $\sqrt{\frac{2h}{g \sin^2 \theta}}$ <p>where h metres is the vertical distance between the top and the bottom of the plane.</p> <p style="text-align: right;">4</p>